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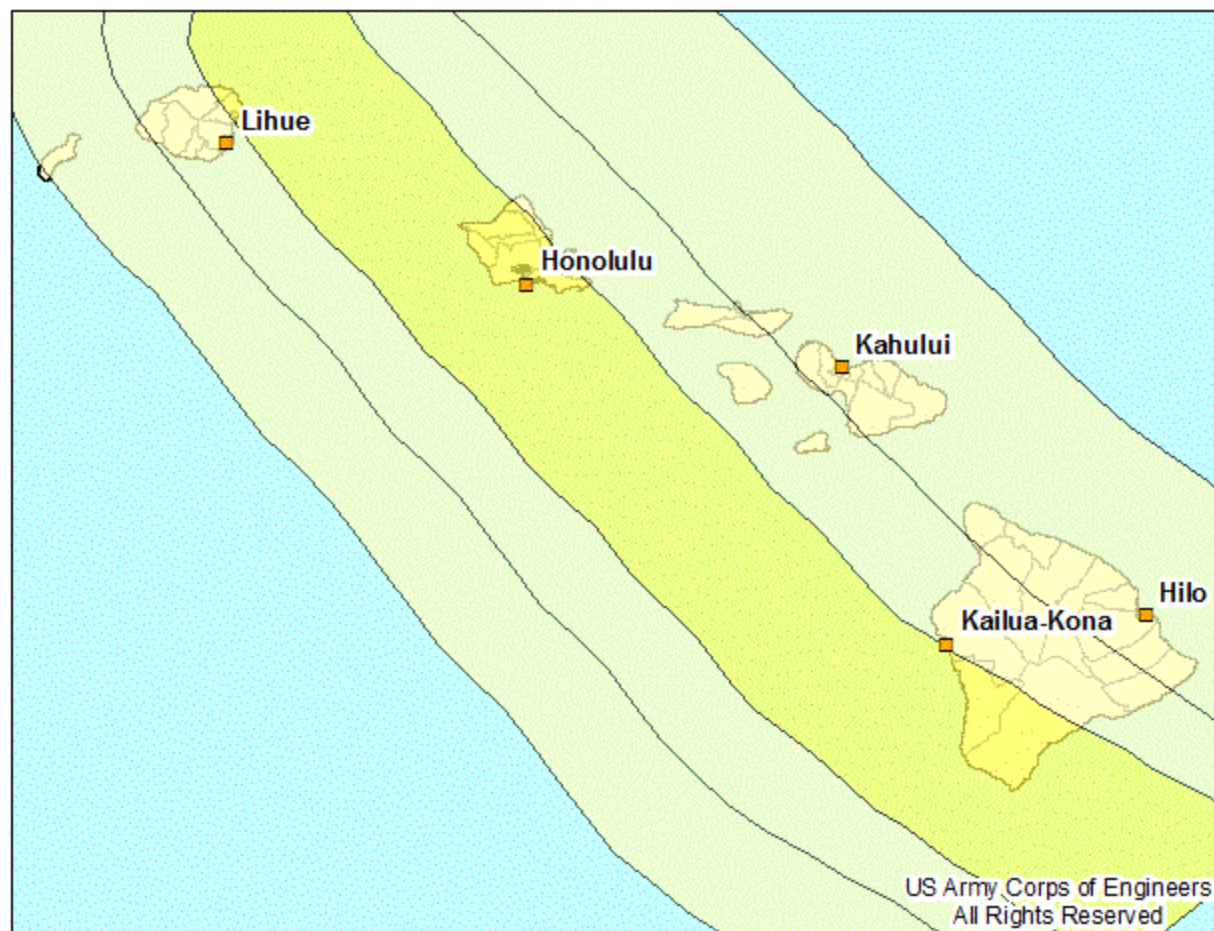
Hurricane Ana Projected Damage Areas

Landfall Expected In About **66** Hours

**For Planning
Purposes Only!**

Post Landfall Projected Damage Areas

This model is based on a
Category 1 storm making landfall
south of Big Island.



Projected Damage Areas

- CAT 0-type damage
- CAT 1-type damage
- CAT 2-type damage
- CAT 3-type damage
- CAT 4-type damage
- CAT 5-type damage

Information provided on this page displays a projected or actual Category 1 storm making landfall south of Big Island. These projections are based on information from the CPHC (1200 EDT 10/15/2014) forecast and extrapolated by LRL staff to represent a landfall condition that has either occurred or may occur in the near future.

* Details about this model may be obtained at

<http://www.usace.army.mil/Missions/EmergencyOperations/DisasterImpactModels.aspx>

or contact the USACE Modeling Team at dli-cemwr-esf3@usace.army.mil

Hurricane Ana Projected Damage Areas

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Sources:

HURREVAC
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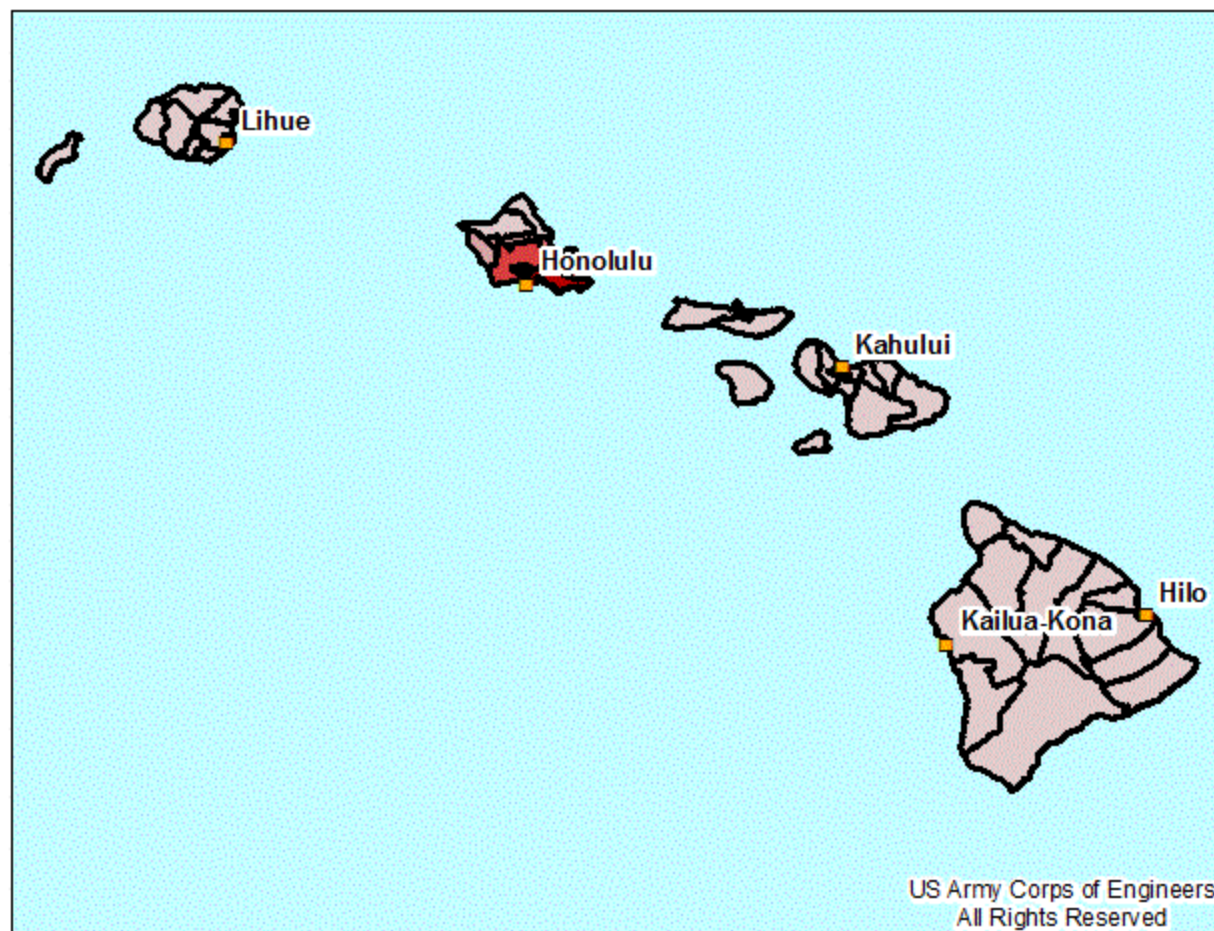


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Hurricane Ana Debris Model

Landfall Expected In About **66** Hours

**For Planning
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0 100 200 Miles

Post Landfall Debris Model Results

HAWAII - 3,909,000 Yards

*Model results per Geographic Unit
on following page*

This model is based on a
Category 1 storm making landfall
south of Big Island.

Debris

- < 100,000 cubic yards
- 100,000 - 249,999 cubic yards
- 250,000 - 499,999 cubic yards
- 500,000 - 999,999 cubic yards
- >1,000,000 cubic yards

Information provided on this page displays a Category 1. These projections are based on information from the CPHC (1200 EDT 10/15/2014) forecast. The amount of debris forecasted is possible total volume, not necessarily the volume that may need to be removed with Federal funds, but does not include volume that may be covered by private insurance. Debris volume may include storm surge generated debris.

*Details about this model may be obtained at

<http://www.usace.army.mil/Missions/EmergencyOperations/DisasterImpactModels.aspx>
or contact the USA CE Modeling Team at dllceiw-fesf3@usace.army.mil

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Hurricane Ana Debris Model

Landfall Expected In About 66 Hours

**For Planning
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Island	Yards per Island	Geographic Unit	Yards per Geographic Unit	Island	Yards per Island	Geographic Unit	Yards per Geographic Unit
HAWAII		EWA - BIG	983,000	HAWAII		SOUTH KOHALA	20,000
		HAMAKUA - NORTH	4,000	(continued)		SOUTH KONA	33,000
		HAMAKUA - SOUTH	3,000			WAHIAWA	124,000
		HANA	2,000			WAIALUA	48,000
		HANAIEI	17,000			WAIANAE	117,000
		HONOLULU - BIG	1,785,000			WAILUKU - 1	24,000
		KALAWAO	< 1,000			WAILUKU - 2	< 1,000
		KAU	19,000			WAILUKU - 3	< 1,000
		KAWAIIHAWA - EAST	32,000			WAILUKU - 4	18,000
		KAWAIIHAWA - WEST	28,000			WAILUKU - 5	18,000
		KOHOA - EAST	10,000			WAILUKU - 6	3,000
		KOHOA - WEST	14,000			WAIKANA - EAST	7,000
		KOOLAULOA	41,000			WAIKANA - WEST	8,000
		KOOLAUPOKO	312,000	HAWAII	3,909,000		
		LAHAINA	21,000				
		LANAI	6,000				
		LIHUE - EAST	10,000				
		LIHUE - WEST	11,000				
		MAKAWAO - NORTHEAST	9,000				
		MAKAWAO - NORTHWEST	16,000				
		MAKAWAO - SOUTH	12,000				
		MOLOKAI - EAST	7,000				
		MOLOKAI - WEST	4,000				
		NIHAU	< 1,000				
		NORTH HILO	3,000				
		NORTH KOHALA	5,000				
		NORTH KONA	64,000				
		PUNA - NORTH	27,000				
		PUNA - SOUTH	13,000				
		SOUTH HILO - 1	46,000				
		SOUTH HILO - 2	5,000				

The amount of debris forecasted is possible total volume, not necessarily the volume that may need to be removed with Federal funds, but does not include volume that may be covered by private insurance.

Debris volume may include storm surge generated debris.

Details about this model may be obtained at

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or contact the USACE Modeling Team at dli-ceiwr-esf3@usace.army.mil

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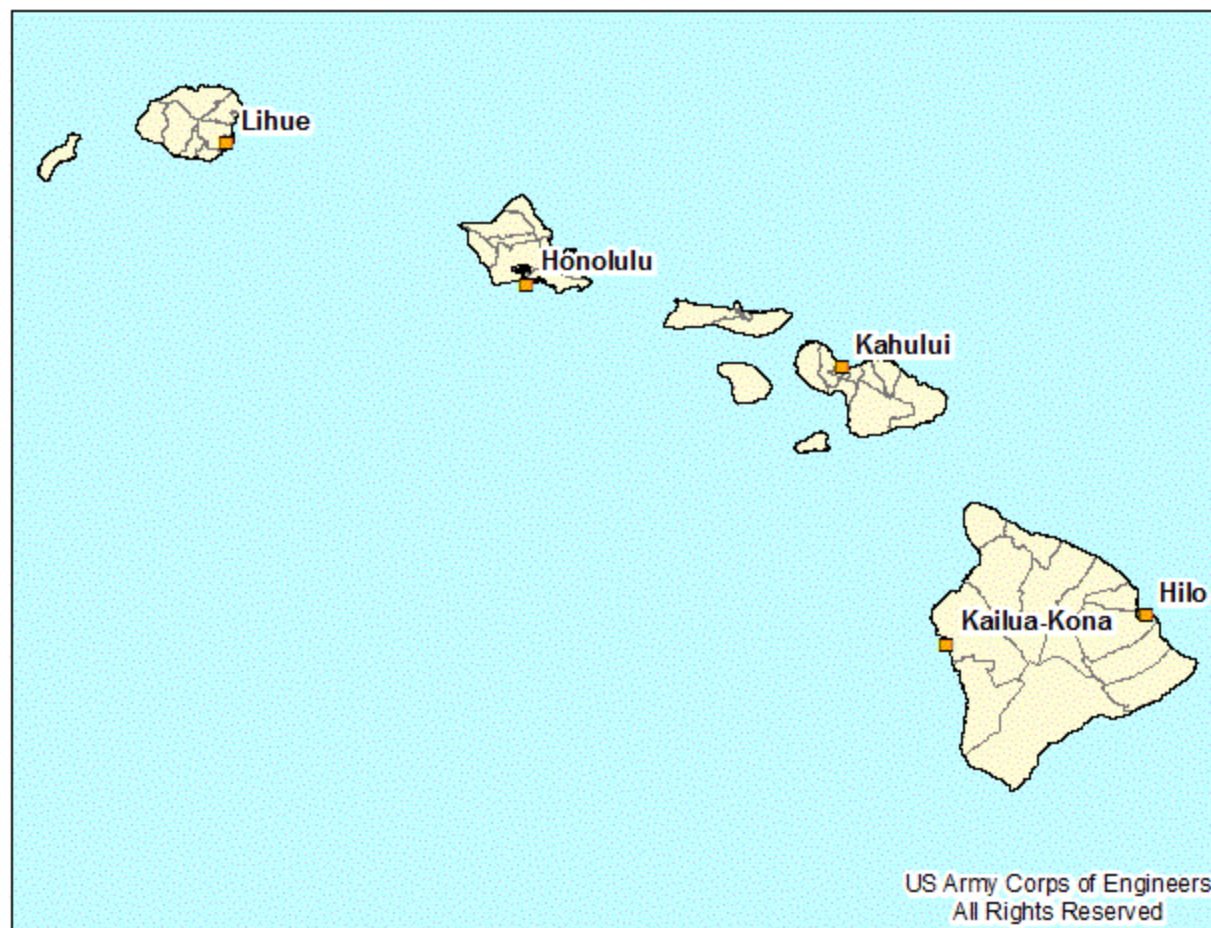


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Hurricane Ana Commodities Model

Landfall Expected In About **66** Hours

**For Planning
Purposes Only!**



0 100 200 Miles

Post Landfall Water Model Results

Day One / Day Two / Day Three

*Model results per Geographic Unit
on following page*

This model is based on a
Category 1 storm making landfall
south of Big Island.

Commodities

- < 5 Trucks Each
- 5 - 10 Trucks Each
- 11 - 20 Trucks Each
- 21 - 40 Trucks Each
- > 40 Trucks Each

Information provided on this page displays a Category 1 storm making landfall south of Big Island. These projections are based on information from the CPHC (1200 EDT 10/15/2014) forecast. The amount of commodities forecasted is based on Mission Guide Book requirements and SME input. The graphic represents daily needs with a ramp-up in the distribution system—three days for Points of Distribution (PODs) to be fully in place and operational. Volume shown is for each commodity—water and ice. Commodity need may be supplied by multiple agencies and/or sources.

* Details about this model may be obtained at

<http://www.usace.army.mil/Missions/EmergencyOperations/DisasterImpactModels.aspx>
or contact the USACE Modeling Team at dli-ceiv-r-esf3@usace.army.mil

Hurricane Ana Commodities Model

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Landfall Expected In About 66 Hours

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The amount of commodities forecasted is based on Mission Guide Book requirements and SME input and the above table indicates suggested daily needs based on full deployment of a commodities distribution system. Volume shown is for each commodity—water and ice. Commodity need may be supplied by multiple agencies and/or sources.

* Details about this model may be obtained at <http://www.usace.army.mil/Missions/EmergencyOperations/DisasterImpactModels.aspx> or contact the USACE Modeling Team at dli-cdw-r-es3@usace.army.mil

Hurricane Ana Commodities Model

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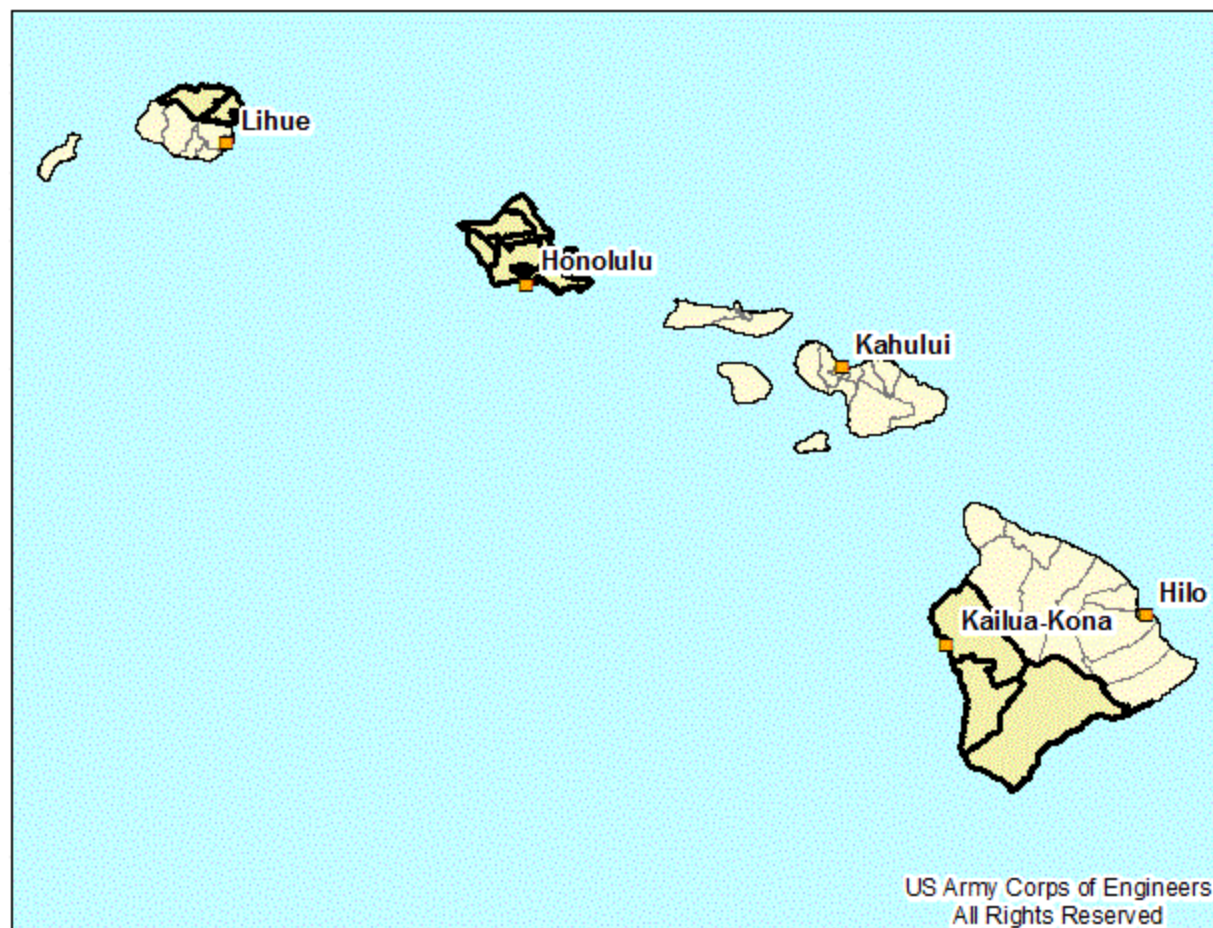


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Hurricane Ana Temporary Roofing Model

Landfall Expected In About **66** Hours

**For Planning
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Post Landfall Temporary Roofing Model Results

HAWAII - 3,400

*Model results per Geographic Unit
on following page*

This model is based on a
Category 1 storm making landfall
south of Big Island.

Temporary Roofing

-  < 2,000 units
-  2,000 - 3,999 units
-  4,000 - 5,999 units
-  6,000 - 9,999 units
-  > 10,000 units

Information provided on this page displays a Category 1 storm making landfall south of Big Island. These projections are based on information from the CPHC (1200 EDT 10/15/2014) forecast. Temporary roofing is based on 1.1% in CAT 1.

* Details about this model may be obtained at

[http://www.usace.army.mil/Missions/Emergency Operations/Disaster Impact Models.aspx](http://www.usace.army.mil/Missions/Emergency%20Operations/Disaster%20Impact%20Models.aspx)

or contact the USACE Modeling Team at dll-celwr-esf3@usace.army.mil

Hurricane Ana Roofing Model

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* Details about this model may be obtained at [http://www.usace.army.mil/Missions/Emergency Operations/Disaster Impact Models.aspx](http://www.usace.army.mil/Missions/Emergency%20Operations/Disaster%20Impact%20Models.aspx) or contact the USA CE Modeling Team at dll-ceiwr-esf3@usace.army.mil

Hurricane Ana Roofing Model

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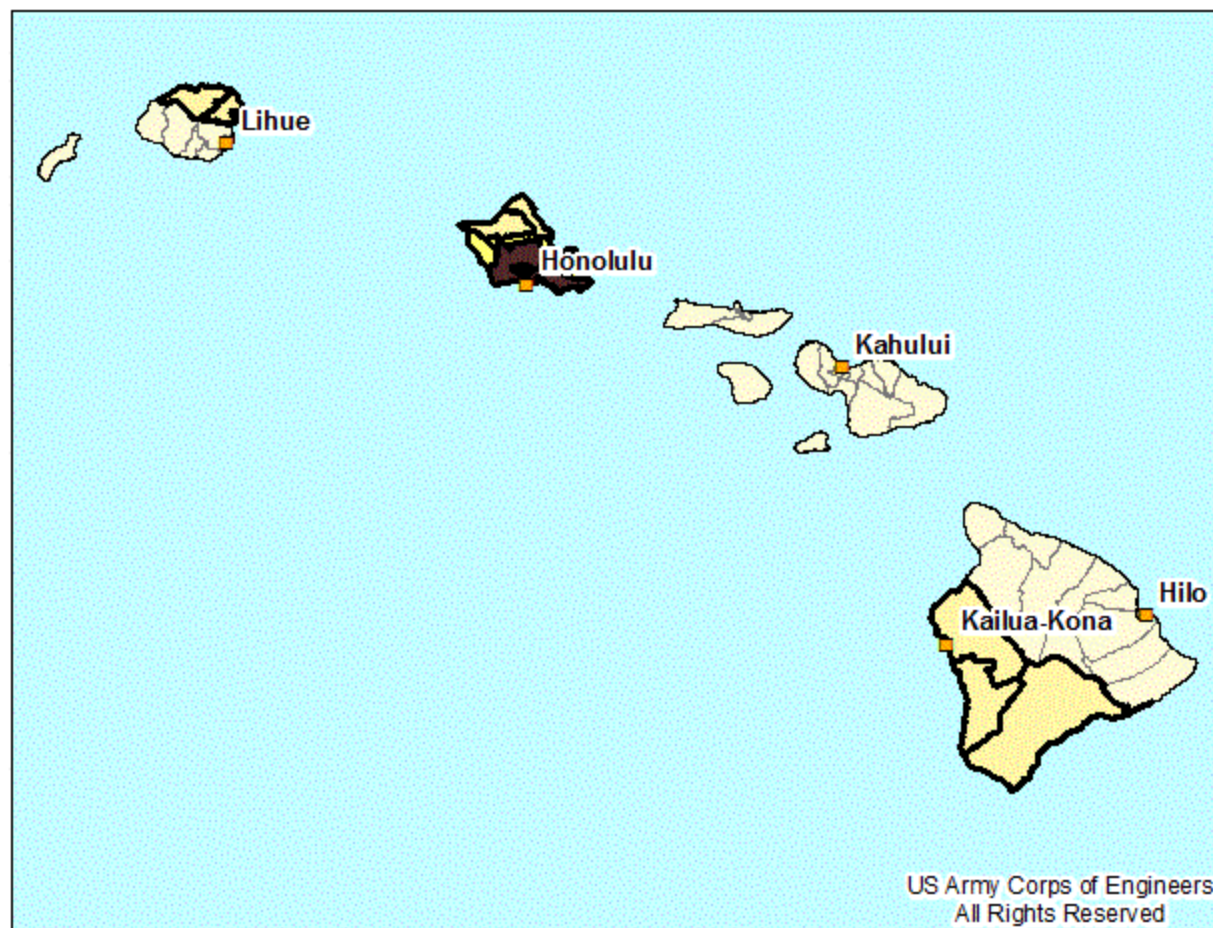


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Hurricane Ana Population Model

Landfall Expected In About **66** Hours

**For Planning
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Post Landfall Population Model Results

HAWAII - 918,000

*Model results per Geographic Unit
on following page*

This model is based on a
Category 1 storm making landfall
south of Big Island.

Population

- < 25,000 persons
- 25,000 - 99,999 persons
- 100,000 - 174,999 persons
- 175,000 - 249,999 persons
- > 250,000 persons

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0 100 200 Miles

Information provided on this page displays a Category 1 storm making landfall south of Big Island. These projections are based on information from the CPHC (1200 EDT 10/15/2014) forecast. The numbers of persons included in this model output are those that would be included within estimated hurricane force winds (Census 2010 values adjusted to July 2011 values).

* Details about this model may be obtained at

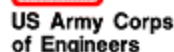
<http://www.usace.army.mil/Missions/EmergencyOperations/DisasterImpactModels.aspx>
or contact the USACE Modeling Team at dll-ceiwr-esf3@usace.army.mil

Hurricane Ana Population Model

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Hurricane Ana Population Model

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[illegible]

The number of persons estimated to be within the hurricane force winds comes from Census 2010 values adjusted to July 2011 values.

* Details about this model may be obtained at

[http://www.usace.army.mil/Missions/Emergency Operations/DisasterImpactModels.aspx](http://www.usace.army.mil/Missions/Emergency%20Operations/DisasterImpactModels.aspx)

or contact the USACE Modeling Team at dll-ceiwr-esf3@usace.army.mil

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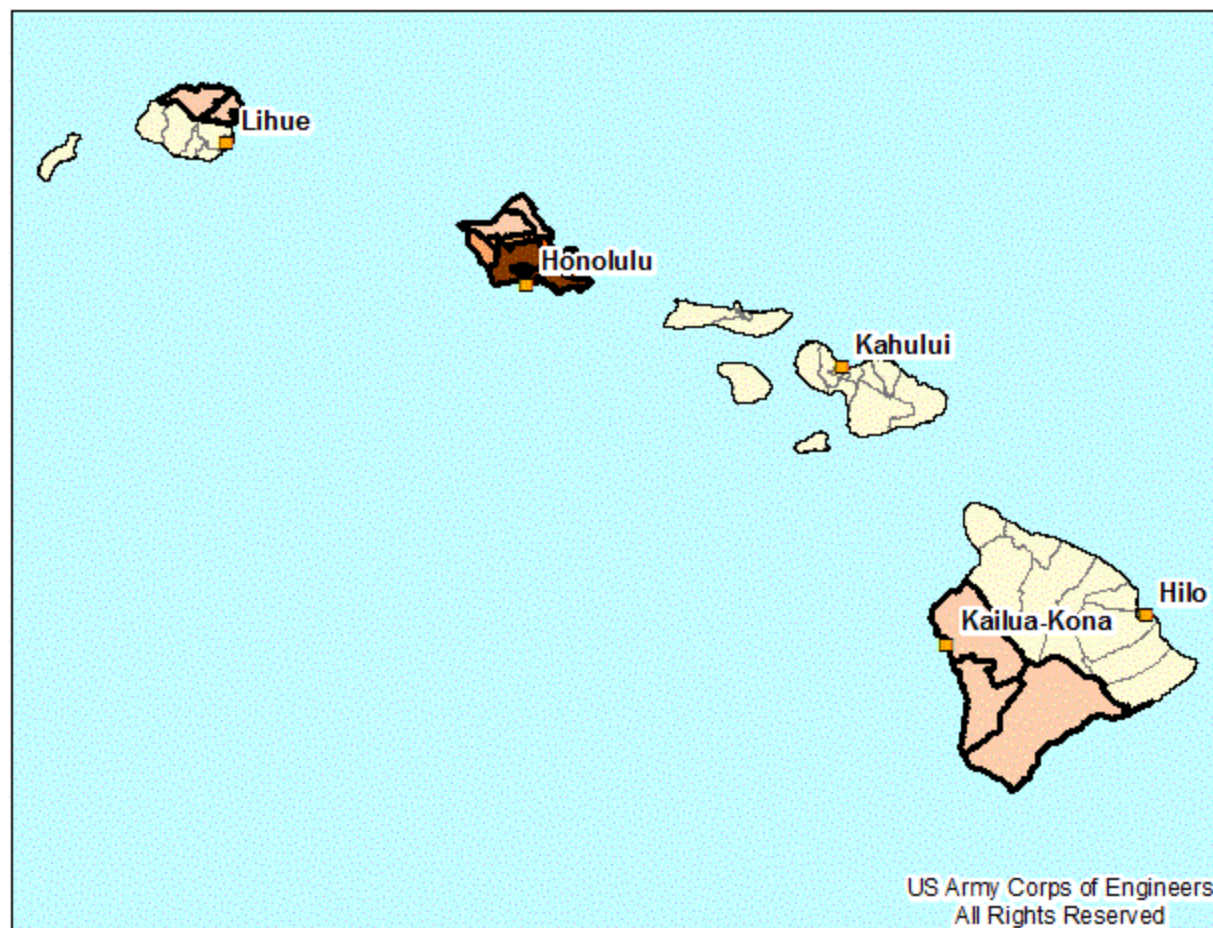


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Hurricane Ana Households Model

Landfall Expected In About **66** Hours

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Post Landfall Households Model Results

HAWAII - 306,000

*Model results per Geographic Unit
on following page*

This model is based on a
Category 1 storm making landfall
south of Big Island.

Households

- < 7,500 households
- 7,500 - 14,999 households
- 15,000 - 24,999 households
- 25,000 - 49,999 households
- > 50,000 households

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0 100 200 Miles

Information provided on this page displays a Category 1 storm making landfall south of Big Island. These projections are based on information from the CFHC (1200 EDT 10/15/2014) forecast. The numbers of households included in this model output are those that would be included within estimated hurricane force winds (Census 2010 values adjusted to July 2011 values).

*Details about this model may be obtained at

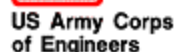
<http://www.usace.army.mil/Missions/EmergencyOperations/DisasterImpactModels.aspx>
or contact the USA CE Modeling Team at dli-ceiwr-esf3@usace.army.mil

Hurricane Ana Households Model

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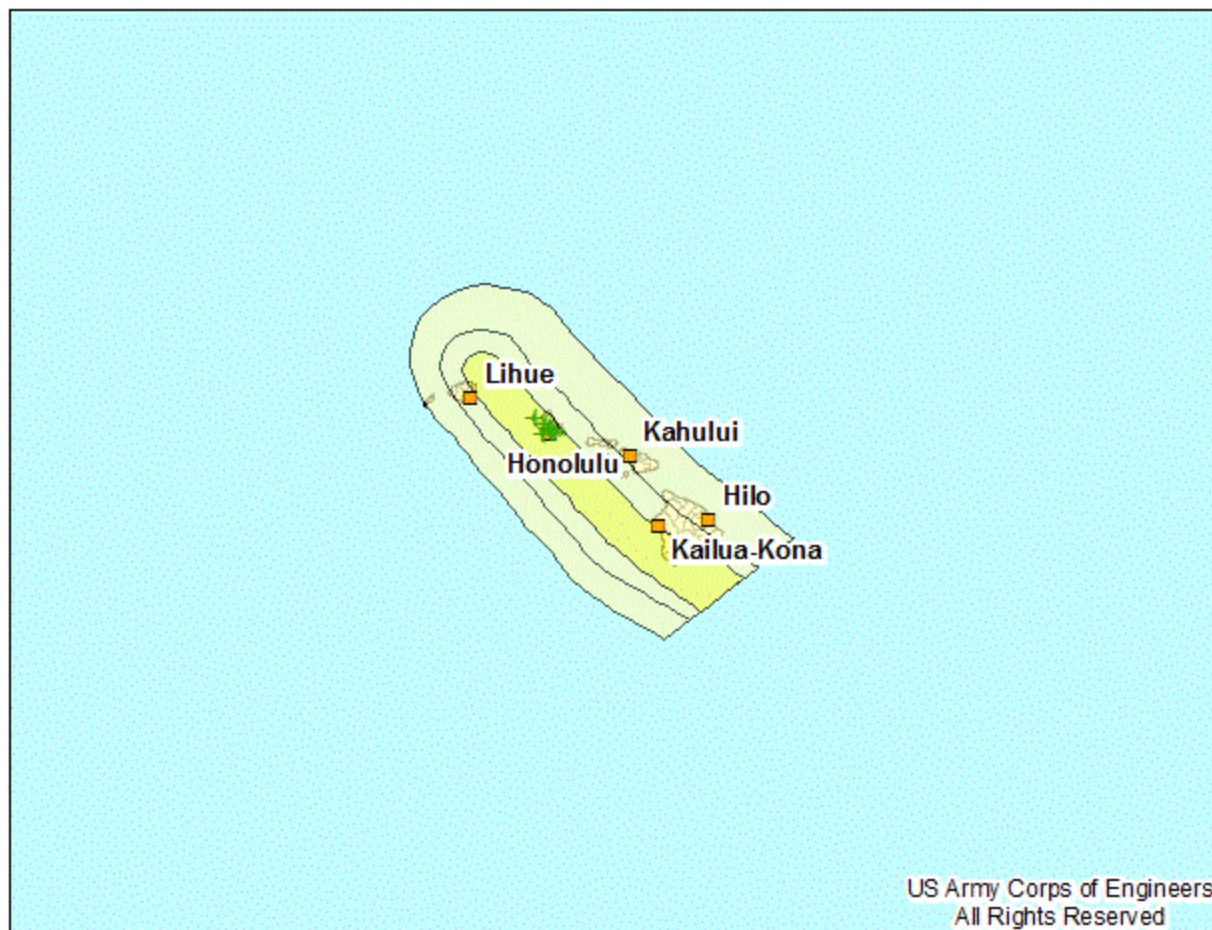


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Hurricane Ana Airports

Landfall Expected In About **66** Hours

**For Planning
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Most Probable Landfall Airports Inside Hurricane Force Winds

Hawaii - 13

*Model results per Geographic Unit
on following page*

This model is based on a
Category 1 storm making landfall
south of Big Island.

0 100 200 Miles



Information provided on this page displays a Category 1 storm making landfall near Hilo, HI. These projections are based on information from the NHC forecast. The number of airports included in this output are those that would be included within estimated hurricane force winds (data source: HSIP Gold 2013).

*Details about this model may be obtained at

<http://www.usace.army.mil/Missions/EmergencyOperations/DisasterImpactModels.aspx>
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+ Airports

Hurricane Ana Airports

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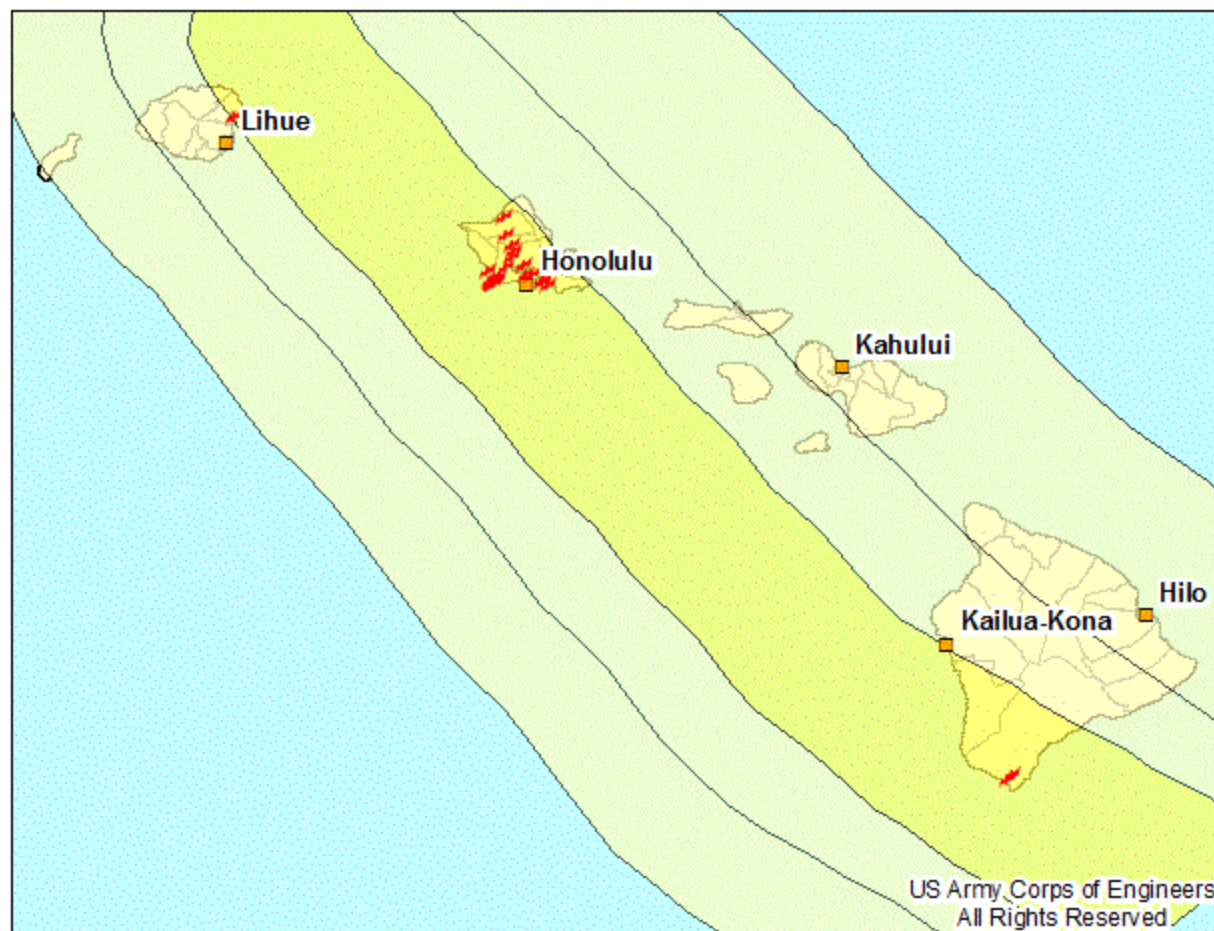


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Hurricane Ana Electric Power Plants

Landfall Expected In About **66** Hours

**For Planning
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Most Probable Landfall Electric Power Plants Inside Hurricane Force Winds

Hawaii - 29

*Model results per Geographic Unit
on following page*

This model is based on a
Category 1 storm making landfall
south of Big Island.

Electric Power Plants

Information provided on this page displays a Category 1. These projections are based on information from the CPHC forecast.

The number of airports included in this output are those that would be included within estimated hurricane force winds (data source: HSIP Gold 2013).

*Details about this model may be obtained at

<http://www.usace.army.mil/Missions/EmergencyOperations/DisasterImpactModels.aspx>

or contact the USA CE Modeling Team at dl-ceiwr-esf3@usace.army.mil

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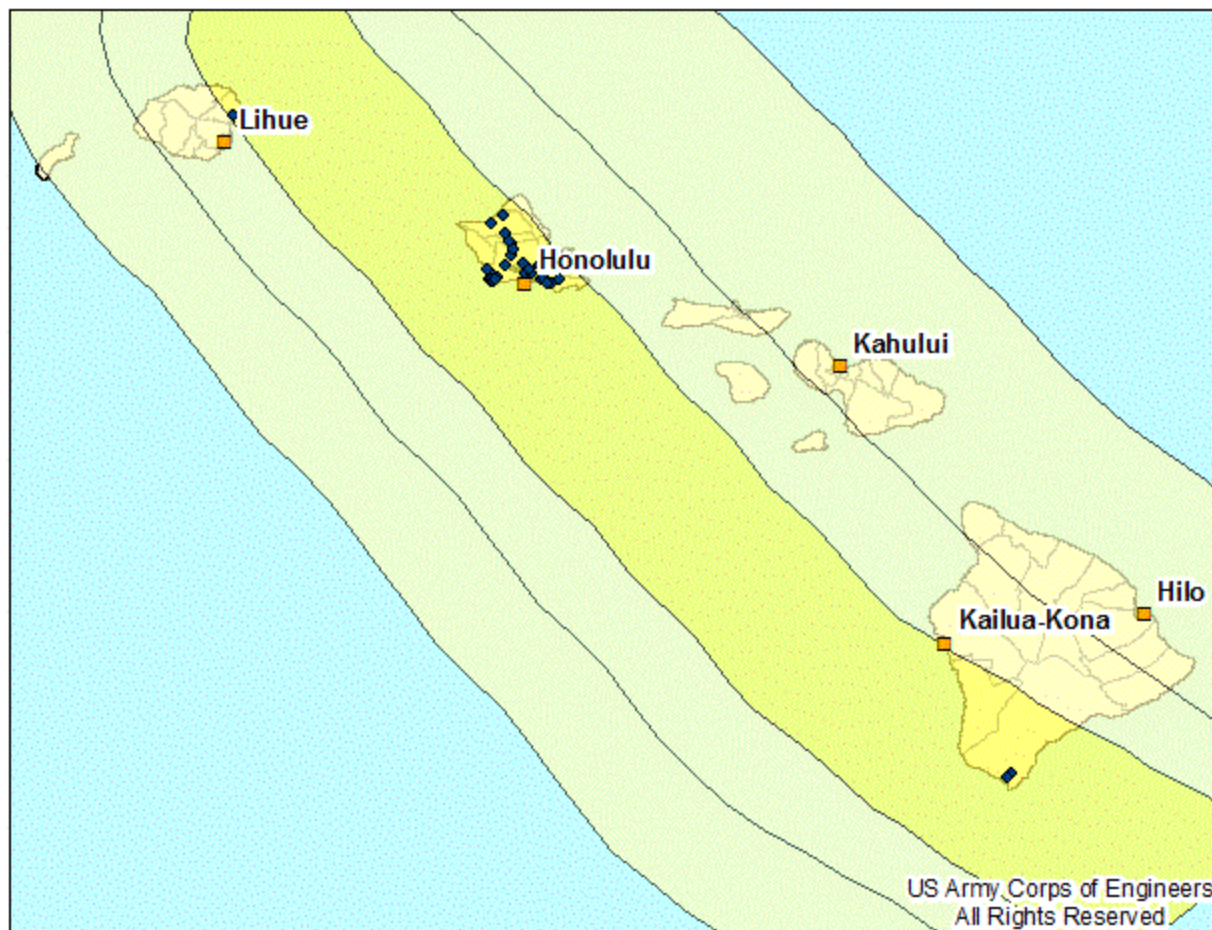


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Hurricane Ana Electric Substations

Landfall Expected In About **66** Hours

**For Planning
Purposes Only!**



Most Probable Landfall Electric Substations Inside Hurricane Force Winds

Hawaii - 41

*Model results per Geographic Unit
on following page*

This model is based on a
Category 1 storm making landfall
south of Big Island.

0 100 200 Miles

◆ Electric Substations

Information provided on this page displays a Category 1 storm. These projections are based on information from the CPHC forecast. The number of critical facilities included in this output are those that would be included within estimated hurricane force winds (data source: HSIP Gold 2013).

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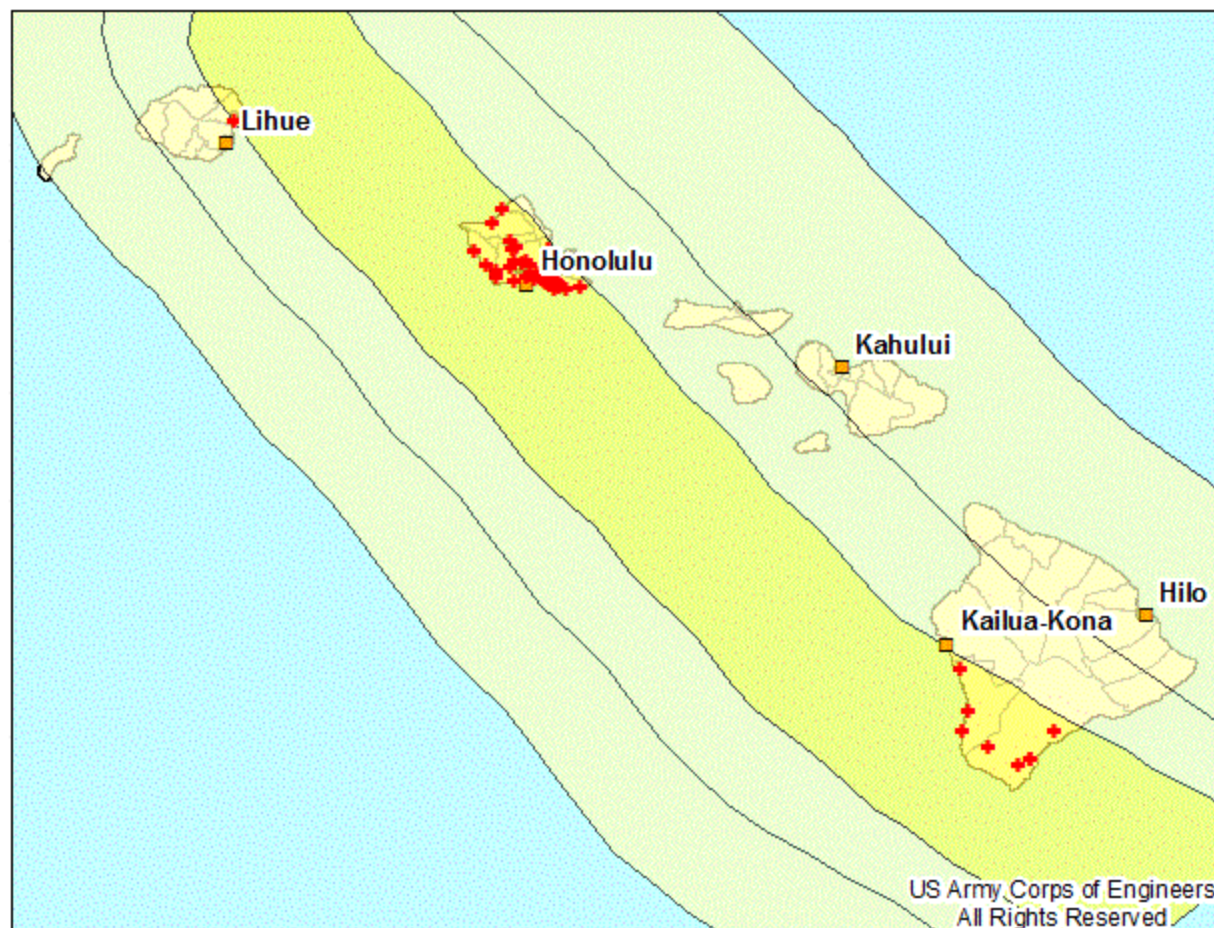


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Hurricane Ana Fire Stations

Landfall Expected In About **66** Hours

**For Planning
Purposes Only!**



Most Probable Landfall Fire Stations Inside Hurricane Force Winds

Hawaii - 47

*Model results per Geographic Unit
on following page*

This model is based on a
Category 1 storm making landfall
south of Big Island.

★ Fire Stations

Information provided on this page displays a Category 1 storm. These projections are based on information from the CPHC forecast. The number of critical facilities included in this output are those that would be included within estimated hurricane force winds (data source: HSIP Gold 2013).

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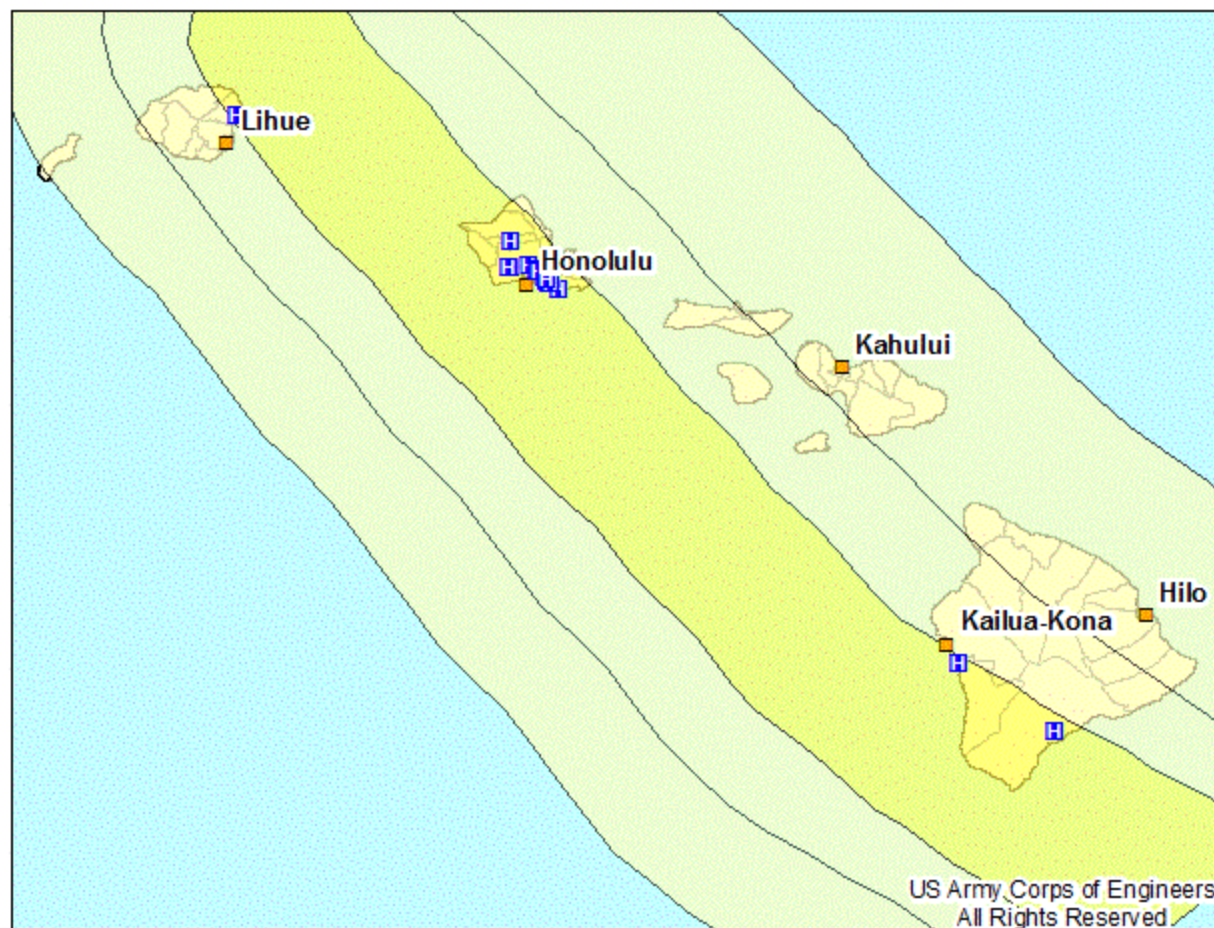


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Hurricane Ana Hospitals

Landfall Expected In About **66** Hours

**For Planning
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Most Probable Landfall Hospitals Inside Hurricane Force Winds

Hawaii - 19

*Model results per Geographic Unit
on following page*

This model is based on a
Category 1 storm making landfall
south of Big Island.

0 100 200 Miles

Hospitals

Information provided on this page displays a Category 1 storm. These projections are based on information from the CPHC forecast. The number of critical facilities included in this output are those that would be included within estimated hurricane force winds (data source: HSIP Gold 2013).

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Hurricane Ana Hospitals

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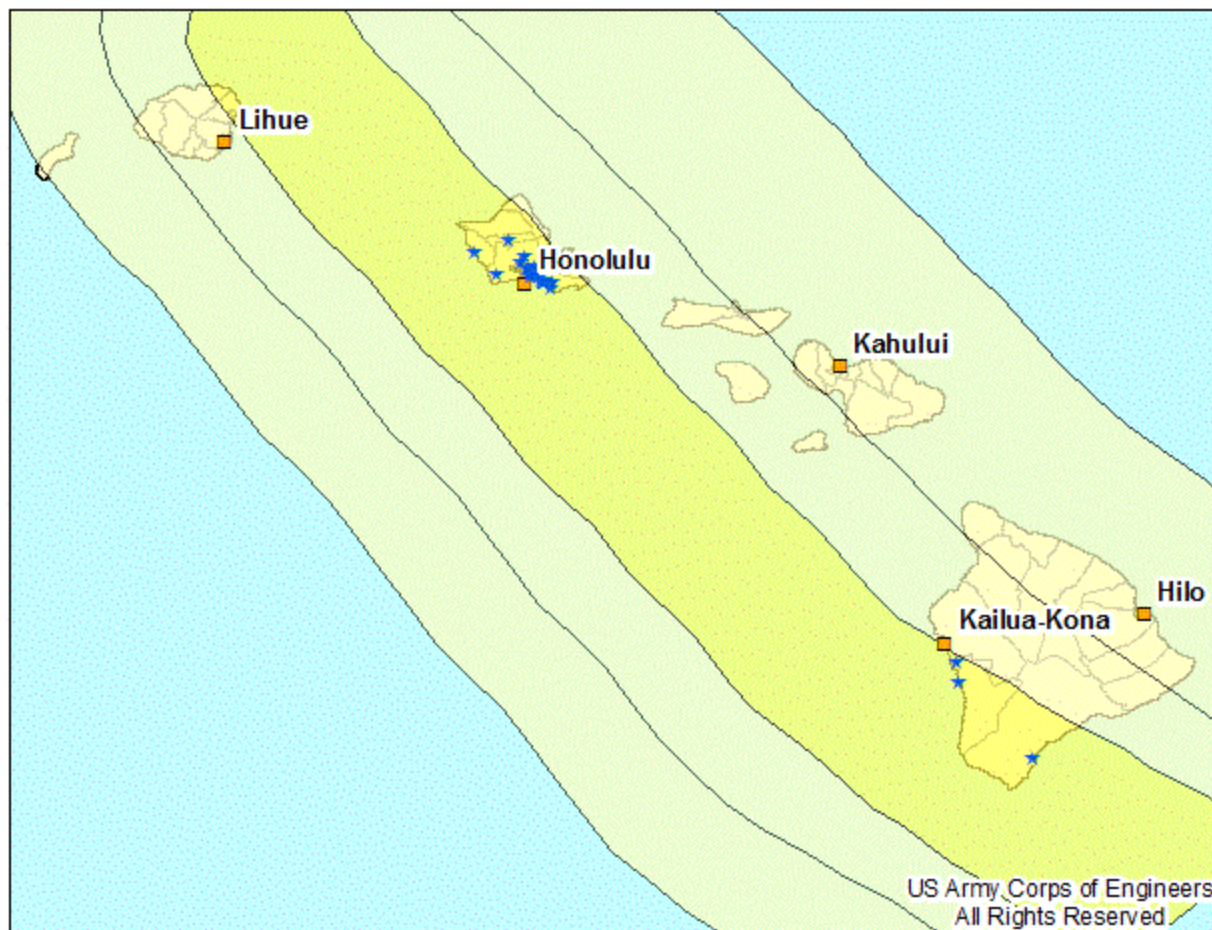


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Hurricane Ana Law Enforcement

Landfall Expected In About **66** Hours

**For Planning
Purposes Only!**



Most Probable Landfall Law Enforcement Inside Hurricane Force Winds

Hawaii - 32

*Model results per Geographic Unit
on following page*

This model is based on a
Category 1 storm making landfall
south of Big Island.

★ Law Enforcement

Information provided on this page displays a Category 1 storm. These projections are based on information from the CPHC forecast. The number of critical facilities included in this output are those that would be included within estimated hurricane force winds (data source: HSIP Gold 2013).

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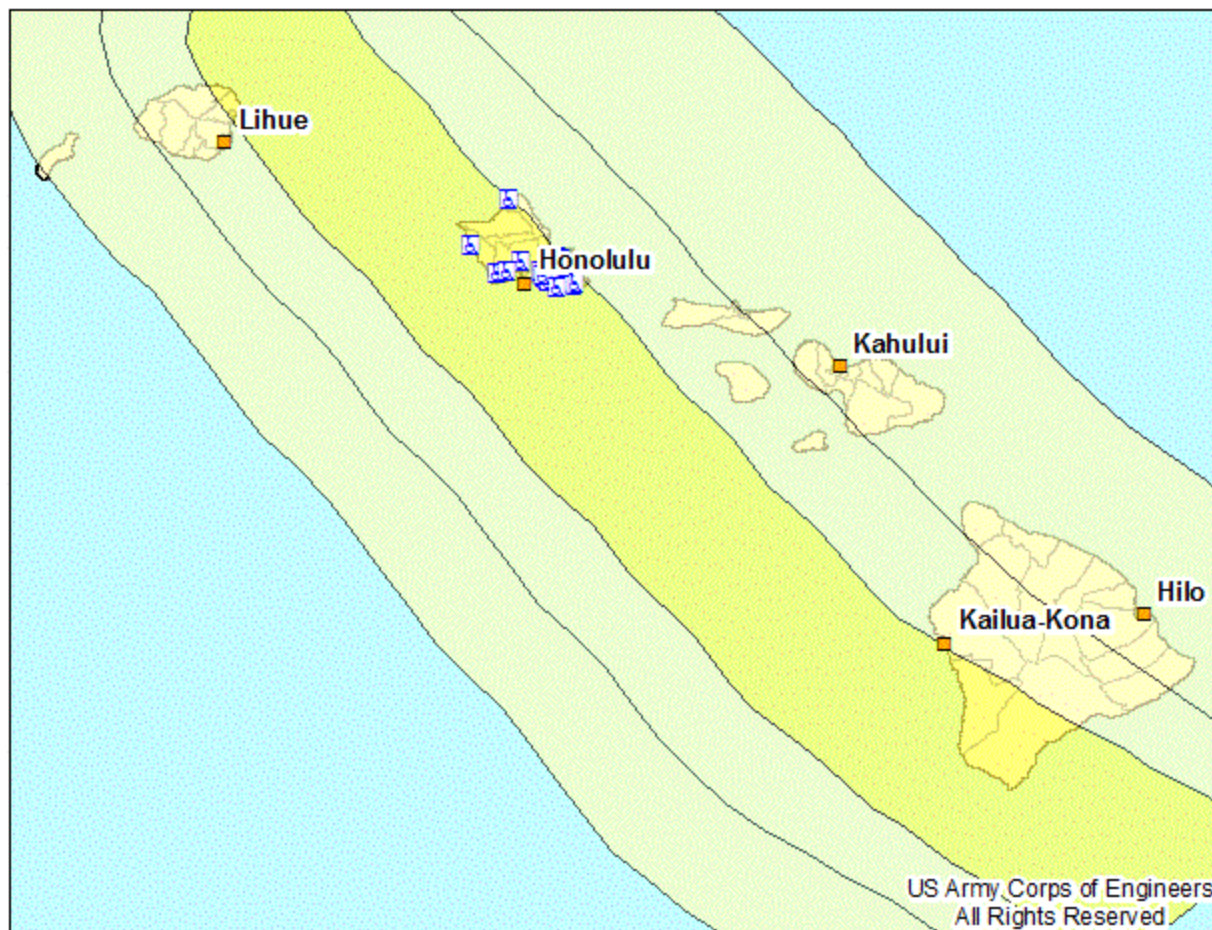


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Hurricane Ana Nursing Homes

Landfall Expected In About **66** Hours

**For Planning
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Most Probable Landfall Nursing Homes Inside Hurricane Force Winds

Hawaii - 30

*Model results per Geographic Unit
on following page*

This model is based on a
Category 1 storm making landfall
south of Big Island.

0 100 200 Miles

Nursing Homes

Information provided on this page displays a Category 1 storm. These projections are based on information from the CPHC forecast. The number of critical facilities included in this output are those that would be included within estimated hurricane force winds (data source: HSIP Gold 2013).

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<http://www.usace.army.mil/Missions/EmergencyOperations/DisasterImpactModels.aspx>
or contact the USA CE Modeling Team at dj-ceiwr-esf3@usace.army.mil

Hurricane Ana Nursing Homes

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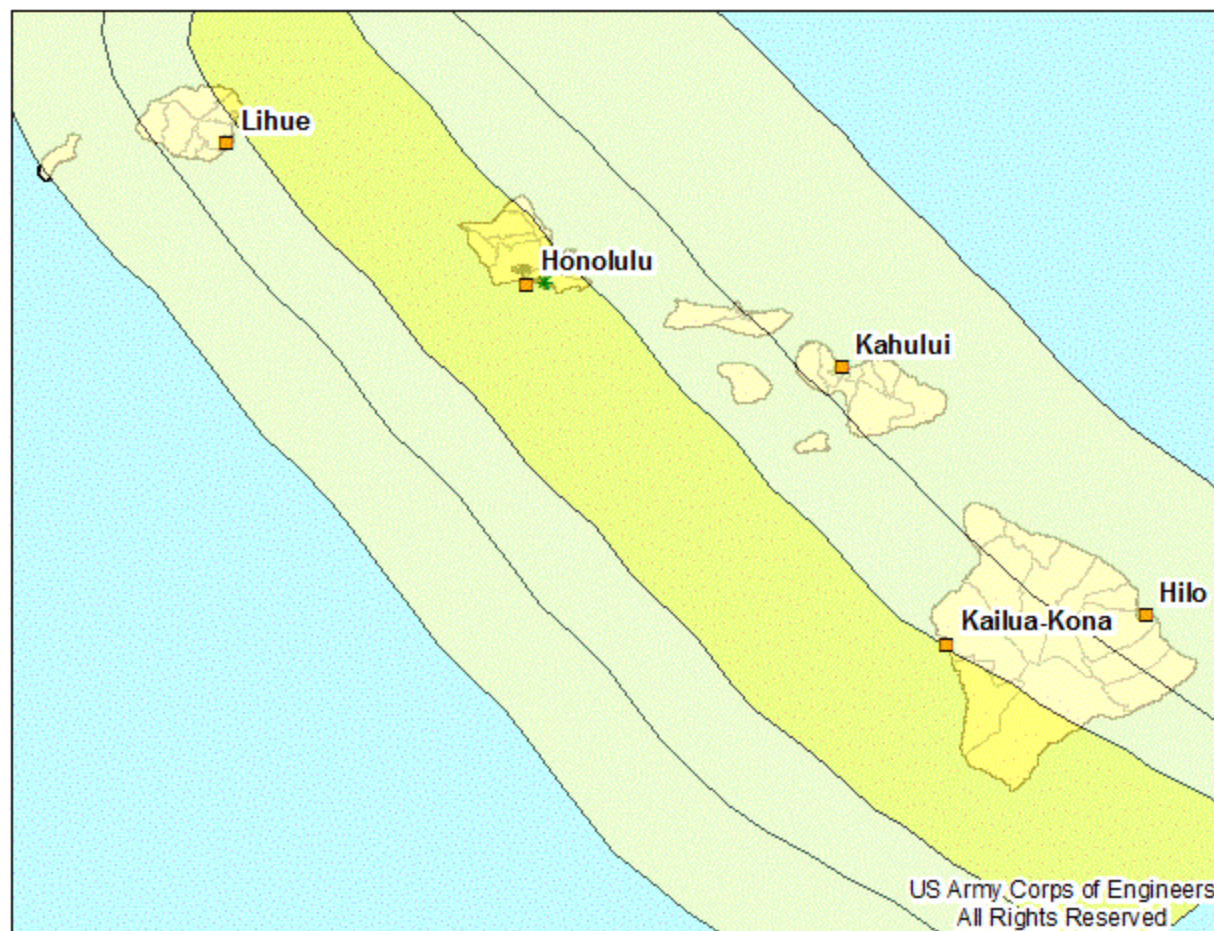


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Hurricane Ana Potable Water

Landfall Expected In About **66** Hours

**For Planning
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Most Probable Landfall Potable Water Inside Hurricane Force Winds

Hawaii - 1

*Model results per Geographic Unit
on following page*

This model is based on a
Category 1 storm making landfall
south of Big Island.

* Potable Water

Information provided on this page displays a Category 1 storm. These projections are based on information from the CPHC forecast. The number of critical facilities included in this output are those that would be included within estimated hurricane force winds (data source: HSIP Gold 2013).

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Hurricane Ana Potable Water

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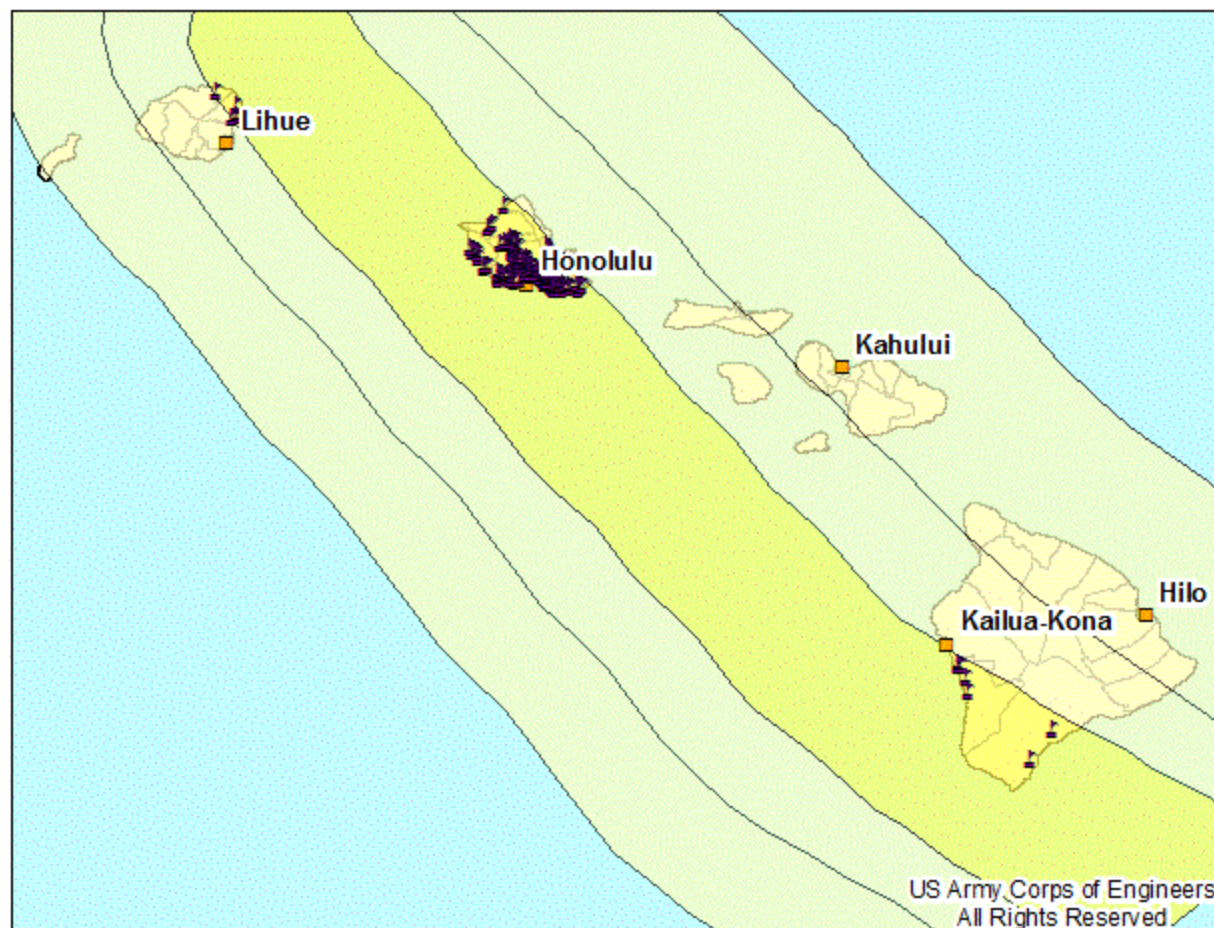


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Hurricane Ana Schools

Landfall Expected In About **66** Hours

**For Planning
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Most Probable Landfall Schools Inside Hurricane Force Winds

Hawaii - 176

*Model results per Geographic Unit
on following page*

This model is based on a
Category 1 storm making landfall
south of Big Island.

0 100 200 Miles

Schools

Information provided on this page displays a Category 1 storm. These projections are based on information from the CPHC forecast. The number of critical facilities included in this output are those that would be included within estimated hurricane force winds (data source: HSIP Gold 2013).

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Hurricane Ana Schools

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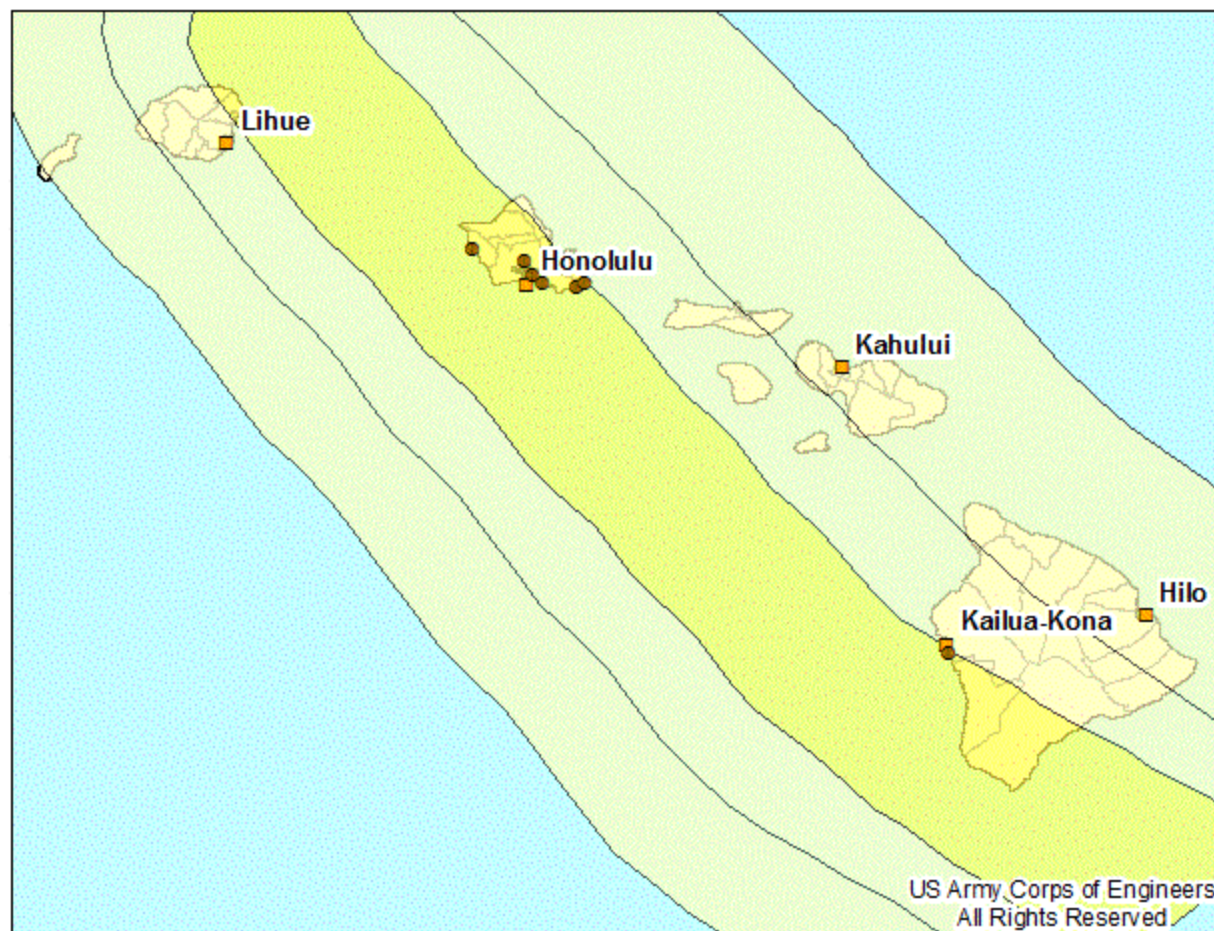


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Hurricane Ana Sewage Treatment Plants

Landfall Expected In About **66** Hours

**For Planning
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Most Probable Landfall Sewage Treatment Plants Inside Hurricane Force Winds

Hawaii - 7

*Model results per Geographic Unit
on following page*

This model is based on a
Category 1 storm making landfall
south of Big Island.

● Sewage Treatment Plants

Information provided on this page displays a Category 1 storm. These projections are based on information from the CPHC forecast. The number of critical facilities included in this output are those that would be included within estimated hurricane force winds (data source: HSIP Gold 2013).

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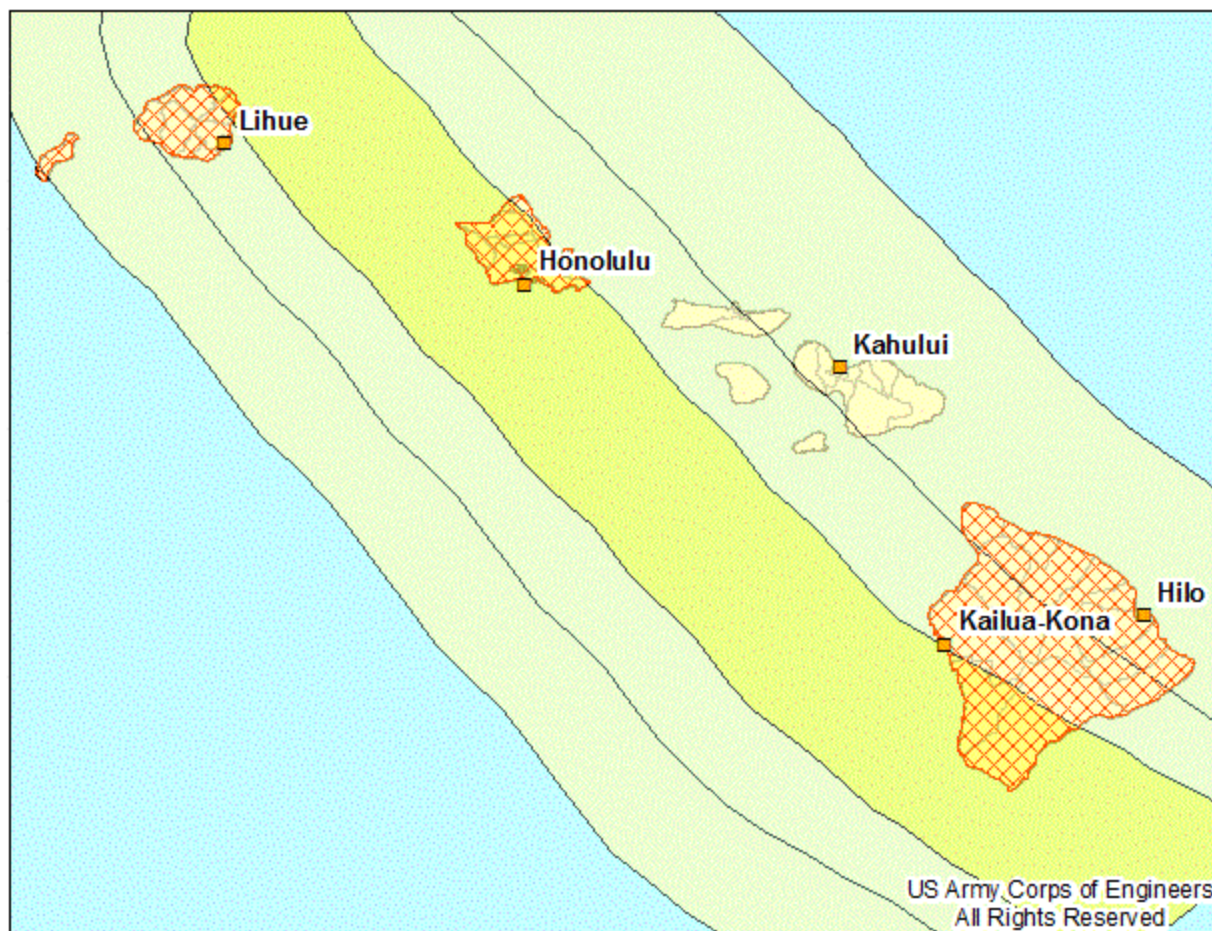


US Army Corps
of Engineers

Hurricane Ana Electric Service Areas

Landfall Expected In About **66** Hours

**For Planning
Purposes Only!**



Most Probable Landfall Electric Service Areas Inside Hurricane Force Winds

Hawaii - 3

*Model results per Geographic Unit
on following page*

This model is based on a
Category 1 storm making landfall
south of Big Island.

Electric Service Areas

Information provided on this page displays a Category 1 storm. These projections are based on information from the CPHC forecast. The number of critical facilities included in this output are those that would be included within estimated hurricane force winds (data source: HSIP Gold 2013).

*Details about this model may be obtained at

<http://www.usace.army.mil/Missions/EmergencyOperations/DisasterImpactModels.aspx>
or contact the USA CE Modeling Team at dli-ceiwr-esf3@usace.army.mil

Hurricane Ana Electric Service Areas

Generated By:
CAM, USACE Modeling Team
@ 1230 EDT 10/15/2014

Sources:
HURREVAC
SimSuite

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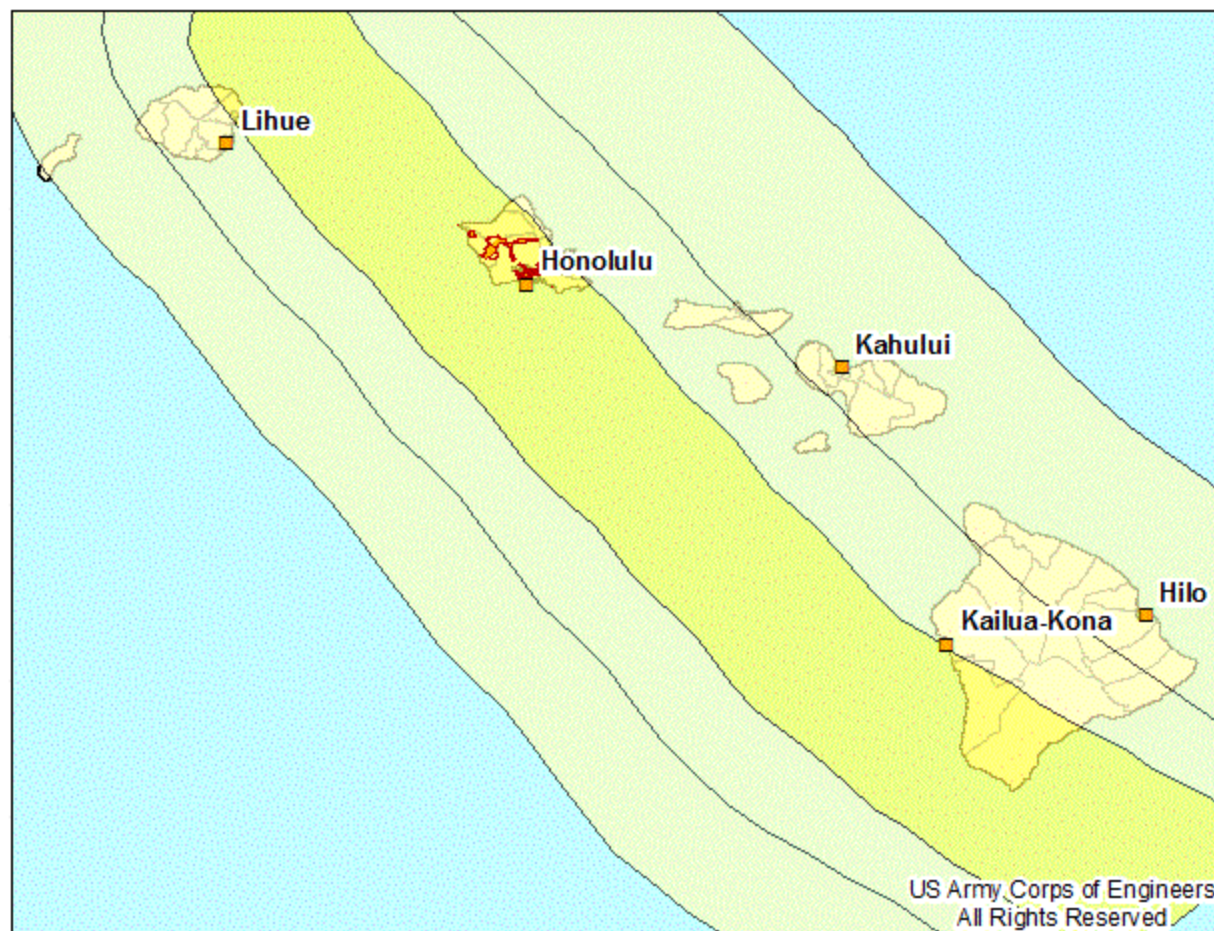


US Army Corps
of Engineers

Hurricane Ana Military Bases

Landfall Expected In About **66** Hours

**For Planning
Purposes Only!**



Most Probable Landfall Military Bases Inside Hurricane Force Winds

Hawaii - 25

*Model results per Geographic Unit
on following page*

This model is based on a
Category 1 storm making landfall
south of Big Island.

0 100 200 Miles

 Military Bases

Information provided on this page displays a Category 1 storm. These projections are based on information from the CPHC forecast. The number of critical facilities included in this output are those that would be included within estimated hurricane force winds (data source: HSIP Gold 2013).

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Hurricane Ana Military Bases

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